

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and the following remarks. Claims 1-56 are pending in the application. In the Office action, the Examiner rejects claims 1-56. No claims have been allowed. Claims 1, 17, 24, 30, 38, 43 and 53 are independent. In the present amendment, editorial amendments have been made to claims 1, 11, 17, 20, 24, 29, 30, , 38, 39, 43, 52, 53 and 56. No new matter has been added.

Cited Art

The Office action cites:

1. "Microsoft Debuts New Windows Media Player 9 Series" ("WMV9 beta press release");
2. "Transcoding of MPEG Bitstreams" ("Keesman reference");
3. U.S. Patent 6,466,623 ("Youn patent");
4. "Transcoding of Single-Layer MPEG Video into Lower Rates" ("Assunção1 reference");
5. U.S. Patent 6,084,909 ("Chiang patent"); and
6. "Buffer Analysis and Control of CBR Transcoding" ("Assunção2 reference").

Rejections under 35 U.S.C. § 101

In the Office action, the Examiner rejects claims 11, 20, 29, 39, 52 and 56 under 35 U.S.C. § 101 as allegedly being directed toward non-statutory subject matter, specifically stating that the language "computer-readable media" reads on "a modulated data signal." Office action, at page 2, § 2. The Applicants respectfully disagree with the Examiner's rejections of these claims but have amended claims 11, 20, 29, 32, 39, 52 and 56 to expedite prosecution.

The application distinguishes "storage" from "communications media." *See, e.g.*, Application, at page 10. Claims 11, 20, 29, 32, 39, 52 and 56 have been amended to recite, a "storage medium storing computer-executable instructions...." The Applicants understand the rejection of claims 11, 20, 29, 39, 52 and 56 to be moot in view of the changes to claims 11, 20, 29, 32, 39, 52 and 56.

Request for Information About WMV9

In the Office action, the Examiner requests additional information about “the most recent Decoding Specification for Windows Media Video V9 as of 04 September 2002. It will be assumed that revision 87e, incorporated in Provisional Application 60/501,081, is substantially similar.” Office action, pages 2-3. This assumption is incorrect. U.S. Provisional Application 60/501,081 (“VC-1 provisional”) includes many sections with no counterpart functionality in the WMV9 beta release of September 4, 2002. In particular, sections in the VC-1 provisional describe new bitstream syntax and decoding semantics for interlaced fields (e.g., interlaced I-fields, interlaced P-fields, interlaced B-fields) and interlaced frames (e.g., interlaced I-frames, interlaced P-frames, interlaced B-frames), as well as new “advanced profile” features for all types of pictures, that had no counterpart functionality in the WMV9 beta release of September 4, 2002.

With a declaration from Thomas Holcomb, the Applicants attach as Exhibit A a version of the decoding specification for WMV9 that Applicants understand to be “the most recent Decoding Specification for Windows Media Video V9 as of 04 September 2002.” The Applicants understand this material to satisfy the Examiner’s requirement for information.

The Applicants further note that U.S. Provisional Application No. 60/488,710 (“WMV9 provisional”) includes an appendix with a specification for WMV9, revision 87:

The attached appendix shows and describes a bitstream syntax and semantics for a compound implementation of various different video encoding and decoding techniques. The appendix also describes the process of decoding the bitstream, and gives an overview of the encoding algorithm, according to the compound implementation. Collectively, the compound implementation defines the Microsoft WMV9 format.

WMV9 provisional, page 8. Applicants note that the WMV9 provisional was cited on page 1 of the Information Disclosure Statement filed October 18, 2005.

Rejections of Claims 1, 2, 8 and 11-15 under 35 USC § 102

In the Office action, the Examiner rejects claims 1, 2, 8 and 11-15 under 35 USC 102(b) as being anticipated by the Keesman reference. Applicants respectfully submit the claims are allowable over the cited art. For a 102(b) rejection to be proper, the cited art must show each and every element as set forth in a claim. See M.P.E.P. § 2131.01. However, the cited art does

not teach or suggest each and every element of any of claims 1, 2, 8 and 11-15. Accordingly, Applicants request that all rejections be withdrawn. Claim 1 is independent.

Claim 1, as amended, recites:

re-compressing the video to produce compressed video in the target format, including making first coding decisions during the re-compressing based at least in part on the obtained type values . . . wherein *the source format is different than the target format, the source format using plural source format syntax elements indicating the obtained type values, and the target format using plural target format syntax elements instead of the plural source format syntax elements.*

Emphasis added. For example, the Application describes differences between homogeneous transcoders, which use the same format for decompression and recompression, and heterogeneous transcoders, which convert video from a source format to a different target format:

Different devices and end users have different storage and transmission capacities as well as different quality requirements. In addition, different devices and end users can use different compression formats. In general, transcoding converts compressed information of one bitrate, quality, *or format* to compressed information of another bitrate, quality, *or format*. Different transcoders use different techniques.

A homogeneous transcoder uses the same format for both decompression and compression during transcoding, for example, converting high bitrate MPEG-2 compressed video to lower bitrate MPEG-2 compressed video. *A heterogeneous transcoder uses different formats for decompression and compression, for example, converting MPEG-2 compressed video to H.261 compressed video.*

Application, at page 3, lines 14-23; emphasis added. The Application goes on to describe examples of techniques in which different source and target formats are used in transcoding:

Various techniques and tools described herein use information from or about the source format compressed video when determining how to use bits efficiently for re-compression. This information may be obtained or derived during decoding of the source format compressed video, or from another source. *Rules in the transcoder define how to use target format syntax elements and make coding decisions based on the source format information. As a result, the quality of the transcoded pictures substantially matches the quality of the source format compressed pictures. . . .*

In some embodiments, a transcoder uses information such as source format syntax elements as hints (implemented as transcoding rules) during re-encoding. *This allows certain corresponding syntax elements and coding decisions to be maintained across the two compression formats. . . .*

In some embodiments, a transcoder coerces a target format encoder to use picture types (e.g., I, P, or B) from the source format compressed video for

corresponding pictures compressed in the target format. This can help the transcoder match quality in the compressed video between the source and target formats, and can also help preserve fast forward, fast reverse, and other access functionality. In some embodiments, a transcoder uses inter/intra macroblock coding types from the source format compressed video when compressing in the target format. Or, a transcoder uses field/frame coding decision information from the source format compressed video. These techniques can also help the transcoder match quality in the compressed video between the source and target formats. At the same time, the transcoder gives the target format encoder the freedom to exploit additional compression opportunities to reduce overall bitrate.

Application, at page 7, line 21 to page 8, line 22; emphasis added. The Application also describes specific examples of transcoding from source MPEG-2 format video to target WMV9 video, as well as other specific examples:

For example, the transcoder maps macroblock layer quantization levels to corresponding macroblocks of the target format compressed video. *When the formats are MPEG-2 and WMV9, the transcoder can map MPEG-2 quantization levels to WMV9 macroblocks using the differential quantizer signaling mechanism of WMV9.*

...
In various example implementations, a video transcoder performs high-fidelity conversion of MPEG-2 coded video to WMV9 coded video while reducing bitrate by 20-30% for typical sequences. The transcoder preserves picture and macroblock types and carefully maps quantization levels to curtail transcoding loss. *The transcoding is particularly useful to producers and broadcasters of high-quality video, where MPEG-2 has been the dominant format. Other applications relate to transcoding between a format used for one type of consumer device (e.g., MPEG-2 on PC) and another type of consumer device (e.g., WMV9 on laptop).*

Alternatively, a transcoder performs conversion other than MPEG-2 to WMV9. *For example, the transcoder converts between MPEG-2 and H.264, MPEG-2 and VC-9, or another pair of video formats.*

Application, at page 8, line 24 to page 9, line 11, emphasis added.

The Keesman reference describes transcoding of an MPEG-2 bit stream to an MPEG-2 bit stream, which does not teach or suggest “wherein the source format is different than the target format, the source format using plural source format syntax elements indicating the obtained type values, and the target format using plural target format syntax elements instead of the plural source format syntax elements,” as recited in claim 1. In its rejection of claim 1, the Office action cites to page 497, column 1 of the Keesman reference, which details the copying of settings from an input MPEG-2 bit stream to an output MPEG-2 bit stream during transcoding:

The transcoder shown in Figure 7 is implemented in software with the inclusion of many MPEG features. . . . *The input and output bit-streams were syntactically correct MPEG-2 bit-streams.* The settings of all these features are copied from the incoming bit-stream in order to minimize the transcoder complexity, that is, to facilitate the realization of Fig. 7.

Keesman reference, at page 497, column 1. Thus, the cited portion of the Keesman reference describes a homogeneous transcoder which uses input and output streams of identical formats. Indeed, if the transcoder of the Keesman reference did not use the same format for both input and output, it would not be able to *identically copy* settings from the input bit stream to the output bit stream. The Applicants do not find any teaching or suggestion to use different input and output formats elsewhere in the Keesman reference.

Finally, the Applicants note that the Office action appears to acknowledge that the Keesman reference by itself teaches only MPEG-2 to MPEG-2 transcoding, as it relies on a combination of the Keesman reference and the WMV9 beta press release to reject claims 9 and 10, which depend from claim 1 and which recite differences between the source and target formats. Office action at § 10, pages 7-8. The WMV9 beta press release does not address transcoding. Even if, for the sake of argument, one were to modify the Keesman reference according to the WMV9 beta press release, the result would be WMV9 to WMV9 transcoding according to the mechanisms described in the Keesman reference.

For at least these reasons, the Keesman reference fails to teach or suggest “wherein the source format is different than the target format, the source format using plural source format syntax elements indicating the obtained type values, and the target format using plural target format syntax elements instead of the plural source format syntax elements,” as recited in claim 1. The Applicants respectfully request that the rejection of independent claim 1, as well as dependent claims 2, 8 and 11-15, be withdrawn and that the claims be allowed. The Applicants will not belabor the merits of the separate patentability of dependent claims 2, 8 and 11-15.

Rejections of Claims 17 and 20-23 under 35 USC § 102

In the Office action, the Examiner rejects claims 17 and 20-23 under 35 USC 102(b) as being anticipated by the Youn patent. Applicants respectfully submit the claims are allowable over the cited art. For a 102(b) rejection to be proper, the cited art must show each and every element as set forth in a claim. *See* M.P.E.P. § 2131.01. However, the cited art does not

describe each and every element of any of claims 17 and 20-23. Accordingly, Applicants request that all rejections be withdrawn. Claim 17 is independent.

Claim 17, as amended, recites:

re-compressing the video to produce compressed video in the second format, including making picture type decisions during the re-compressing based at least in part on the obtained picture type values, . . . wherein *the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained picture type values, and the second format using plural second format syntax elements instead of the plural first format syntax elements.*

Emphasis added.

The Youn patent gives no indication that it performs transcoding between input and output video of different formats, and thus does not teach or suggest “the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained picture type values, and the second format using plural second format syntax elements instead of the plural first format syntax elements,” as recited in claim 17. In its rejection of claim 17, the Office action cites to figure 9 of the Youn patent and the accompanying text in column 8. Applicants note, however, that the Youn patent does not describe transcoding of video between two formats. In fact, the Youn patent’s only description of the processes of Figure 9, is of changing bit and frame rates, not formats:

FIG. 9 is a diagram of a drift-free transcoder 918 consistent with this invention. . . . The input to transcoder 918 is encoded digital video 608 from first network 512. . . .

Encoder 916 takes intermediate video signal 920 and re-encodes it at a bit and frame rate suitable for second network 522.

Youn patent, at column 8, lines 40-56; emphasis added. The Applicants also note that the Youn patent categorizes its transcoders as variants of “open-loop” transcoders in which “the incoming bit-rate is reduced by the well-known mathematical technique of truncating or re-quantizing the DCT coefficients.” Youn patent, column 2, lines 5-8; *see also* column 6, lines 20-24. An “open-loop transcoder,” as described by the Youn patent does not change formats in transcoding, as it maintains or slightly modifies transform coefficients without an inverse transform.

Finally, Applicants note that the Office action appears to acknowledge that the Youn patent by itself does not teach or suggest transcoding between different formats, as it relies on a combination of the Youn patent and the WMV9 beta press release to reject claims 18 and 19,

which depend from claim 17 and which recite differences between the first and second formats. Office action at § 12, pages 9-10. The WMV9 beta press release does not address transcoding. Even if, for the sake of argument, one were to modify the Youn patent according to the WMV9 beta press release, the result would be WMV9 to WMV9 transcoding according to the mechanisms described in the Youn patent.

For at least these reasons, the Youn patent fails to teach or suggest the above-quoted language of claim 17. The Applicants respectfully request that the rejection of independent claim 17, as well as dependent claims 20-23, be withdrawn and that the claims be allowed. The Applicants will not belabor the merits of the separate patentability of dependent claims 20-23.

Rejections of Claims 38, 41, 42 and 53 under 35 USC § 102

In the Office action, the Examiner rejects claims 38, 41, 42 and 53 under 35 USC 102(b) as being anticipated by the Assunção1 reference. Applicants respectfully submit the claims are allowable over the cited art. For a 102(b) rejection to be proper, the cited art must show each and every element as set forth in a claim. *See* M.P.E.P. § 2131.01. However, the cited art does not describe each and every element of any of claims 38, 41, 42 and 53. Accordingly, Applicants request that all rejections be withdrawn. Claims 38 and 53 are independent.

Claim 38

Claim 38 recites:

re-compressing the video to produce compressed video in a second format, including setting quantization levels for corresponding macroblocks of the compressed video in the second format based at least in part on the obtained quantization levels, *wherein the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained quantization levels, and the second format using plural second format syntax elements instead of the plural first format syntax elements.*

Emphasis added.

The transcoding approach described in the Assunção1 reference is focused on MPEG-2 to MPEG-2 transcoding, and thus cannot teach or suggest “wherein the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained quantization levels, and the second format using plural second format syntax elements instead of the plural first format syntax elements,” as recited in claim 38. The Assunção1

reference is entitled “Transcoding of Single-Layer MPEG Video into Lower Rates.” The Assunção1 reference is focused entirely on transcoding simulations and implementations that are adapted specifically to MPEG-2 to MPEG-2 transcoding. *See* Assunção1 reference, Figures 1 and 2. The Assunção1 reference gives no indication that it relates to transcoding between different formats. Finally, Applicants note that the Office action appears to acknowledge that the Assunção1 reference by itself does not teach or suggest transcoding between different formats, as it relies on a combination of the Assunção1 reference and the WMV9 beta press release to reject claim 31, which recites differences between first and second formats. Office action at § 14, page 11. The WMV9 beta press release does not address transcoding. Even if, for the sake of argument, one were to modify the Assunção1 reference according to the WMV9 beta press release, the result would be WMV9 to WMV9 transcoding according to the mechanisms described in the Assunção1 reference.

For at least these reasons, the Assunção1 reference fails to teach or suggest the above-quoted language of claim 38. The Applicants respectfully request that the rejection of independent claim 38, as well as dependent claims 41 and 42, be withdrawn and that the claims be allowed. The Applicants will not belabor the merits of the separate patentability of dependent claims 41 and 42.

Claim 53

Claim 53, as amended, recites:

wherein the first format is different than the second format, the first format using plural first format syntax elements, and the second format using plural second format syntax elements instead of the plural first format syntax elements.

In its rejection of claim 53, the Office action cites to the same section of the Assunção1 reference as in the rejection of claim 38. As noted above, the Assunção1 reference fails to teach or suggest “wherein the first format is different than the second format, the first format using plural first format syntax elements, and the second format using plural second format syntax elements instead of the plural first format syntax elements.” The Applicants respectfully request that the rejection of independent claim 53 be withdrawn and that the claim be allowed.

Patentability of Claims 6, 9, 10, 16 and 24-29 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 6, 9, 10, 16 and 24-29 under 35 U.S.C § 103(a) as being unpatentable over the Keesman reference in view of the WMV9 beta press release. Claim 24 is independent.

Each of claims 6, 9, 10 and 16 depends from claim 1. The Applicants explained above how the Keesman reference fails to teach or suggest the above-cited language of claim 1. The WMV9 beta press release does not address transcoding. Even if, for the sake of argument, one were to modify the Keesman reference according to the WMV9 beta press release, the result would be WMV9 to WMV9 transcoding according to the mechanisms described in the Keesman reference. The combination still would not teach or suggest the above-cited language of claim 1. For at least these reasons, claims 6, 9, 10 and 16 should be allowable. The Applicants will not belabor the merits of the separate patentability of these dependent claims.

Claim 24, as amended, recites:

re-compressing the video to produce compressed video in a second format different than the first format, including making coding decisions during re-compressing based at least in part on the obtained frame/field information to help match the quality of the compressed video in the second format to the quality of the compressed video in the first format, *wherein the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained frame/field information, and the second format using plural second format syntax elements instead of the plural first format syntax elements.*

Emphasis added.

The Keesman reference's transcoding of an MPEG-2 bit stream to an MPEG-2 bit stream does not teach or suggest "wherein the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained frame/field information, and the second format using plural second format syntax elements instead of the plural first format syntax elements," as recited in claim 24. As noted above, the Keesman reference describes MPEG-2 to MPEG-2 transcoding, in which the transcoder uses input and output bit streams of identical formats. The Applicants do not find any teaching or suggestion to use different input and output formats in the Keesman reference.

The WMV9 beta press release does not address transcoding. Even if, for the sake of argument, one were to modify the Keesman reference according to the WMV9 beta press release,

the result would be WMV9 to WMV9 transcoding according to the mechanisms described in the Keesman reference.

For at least these reasons, the Keesman reference fails to teach or suggest the above-cited language of claim 24. The Applicants respectfully request that the rejection of independent claim 24, as well as dependent claims 25-29, be withdrawn and that the claims be allowed. The Applicants will not belabor the merits of the separate patentability of dependent claims 25-29.

Patentability of Claims 3 and 7 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 3 and 7 under 35 U.S.C § 103(a) as being unpatentable over the Keesman reference in view of the Youn patent. Each of claims 3 and 7 depend from claim 1. For at least the reasons explained above, the Keesman patent does not teach or suggest each and every element of claim 1. The Youn patent, discussed above, fails to remedy this shortcoming. Thus, claims 3 and 7 should be allowable. The Applicants will not belabor the merits of the separate patentability of dependent claims 3 and 7.

Patentability of Claims 4 and 5 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 4 and 5 under 35 U.S.C § 103(a) as being unpatentable over the Keesman reference in view of the Youn patent and further in view of the WMV9 beta press release. Each of claims 4 and 5 depend from claim 1. For at least the reasons explained above, the Keesman reference does not teach or suggest each and every element of claim 1. The Youn patent and the WMV9 beta press release, as discussed above, fail to remedy this shortcoming. Thus, claims 4 and 5 should be allowable. The Applicants will not belabor the merits of the separate patentability of dependent claims 4 and 5.

Patentability of Claims 18 and 19 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 18 and 19 under 35 U.S.C § 103(a) as being unpatentable over the Youn patent in view of the WMV9 beta press release. Each of claims 18 and 19 depend from claim 17. For at least the reasons explained above, the Youn patent does not teach or suggest each and every element of claim 17. The WMV9 beta press release, as discussed above, fails to remedy this shortcoming. Thus, claims 18 and 19 should be

allowable. The Applicants will not belabor the merits of the separate patentability of dependent claims 18 and 19.

Patentability of Claims 39 and 56 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 39 and 56 under 35 U.S.C § 103(a) as being unpatentable over the Assunção1 reference. Claims 39 and 56 depend from claims 38 and 53, respectively. For at least the reasons explained above, the Assunção1 reference does not teach or suggest each and every element of claims 38 and 53, respectively. Thus, claims 39 and 56, which are storage media dependent claims from claims 38 and 53, should be allowable.

Patentability of Claims 30-32, 35-37, 40, 43, 44 and 46-52 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 30-32, 35-37, 40, 43, 44 and 46-51 under 35 U.S.C § 103(a) as being unpatentable over the Assunção1 reference in view of the WMV9 beta press release. Claims 30 and 43 are independent.

Claims 30 and 43, as amended, each recite:

wherein the first format is different than the second format, the first format using plural first format syntax elements indicating the obtained quantization levels, and the second format using plural second format syntax elements instead of the plural first format syntax elements

As discussed above, the transcoding scheme in the Assunção1 reference is focused on MPEG-2 to MPEG-2 transcoding, and does not teach or suggest the above-cited language of claims 30 and 43, respectively. The Applicants note that the Office action appears to acknowledge that the Assunção1 reference by itself does not teach or suggest transcoding between different formats, as it relies on a combination of the Assunção1 reference and the WMV9 beta press release to reject claim 31, which recites differences between first and second formats. Office action at § 14, page 11. The WMV9 beta press release does not address transcoding. Even if, for the sake of argument, one were to modify the Assunção1 reference according to the WMV9 beta press release, the result would be WMV9 to WMV9 transcoding according to the mechanisms described in the Assunção1 reference.

For at least these reasons, the Assunção1 reference fails to teach or suggest the above-quoted language of claims 30 and 43, respectively. The Applicants respectfully request that the rejection of independent claims 30 and 43, as well as dependent claims 31, 32, 35-37, 40, 44 and

46-51, be withdrawn and that the claims be allowed. The Applicants will not belabor the merits of the separate patentability of dependent claims 31, 32, 35-37, 40, 44 and 46-51.

Patentability of Claim 34 under 35 USC § 103(a)

In the Office action, the Examiner rejects claim 34 under 35 U.S.C § 103(a) as being unpatentable over the Assunção1 reference in view of WMV9 beta press release and the Chiang patent. Claim 34 depends from claim 30. For at least the reasons explained above, the Assunção1 reference, taken separately or in combination with WMV9 beta press release does not teach or suggest every element of claim 30. The Chiang patent fails to remedy this shortcoming. *See* Chiang patent, at column 1, lines 18-31. Thus, the Chiang patent, taken separately or in combination with the Assunção1 reference and WMV9 beta press release, still fails to teach or suggest each and every element of claim 30. For at least this reason, dependent claim 34 should be allowable. The Applicants will not belabor the merits of the separate patentability of dependent claim 34.

Patentability of Claims 54 and 55 under 35 USC § 103(a)

In the Office action, the Examiner rejects claims 54 and 55 under 35 U.S.C § 103(a) as being unpatentable over the Assunção1 reference in view of the Assunção2 reference. Claims 54 and 55 depend from claim 53. For at least the reasons explained above, the Assunção1 reference does not teach or suggest every element of claim 53. The Assunção2 reference fails to remedy this shortcoming. The Assunção2 reference, like the Assunção1 reference, is focused on an MPEG transcoding. *See* Assunção2 reference, at page 83, column 2. Thus, the Assunção2 reference, taken separately or in combination with the Assunção1 reference, still fails to teach or suggest each and every element of claim 53. For at least this reason, dependent claims 54 and 55 should be allowable. Applicants will not belabor the merits of the separate patentability of dependent claims 54 and 55.

Interview Request

If the claims are not found by the Examiner to be allowable, the Examiner is requested to call the undersigned attorney to set up an interview to discuss this application.


Conclusion

The claims in their present form should be allowable. Such action is respectfully requested.

Respectfully submitted,

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